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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,686	12/12/2003	Young Hwa Kim	1126-005US02	1211
28863 7590 11/23/2010 SHUMAKER & SIEFFERT, P. A. 1625 RADIO DRIVE SUITE 300 WOODBURY, MN 55125				
EXAMINER				
PIZIALI, ANDREW T				
ART UNIT		PAPER NUMBER		
1798				
NOTIFICATION DATE		DELIVERY MODE		
11/23/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pairedocketing@ssiplaw.com

Office Action Summary

Application No.

10/734,686

Applicant(s)

KIM ET AL.

Examiner

Andrew T. Piziali

Art Unit

1798

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 47, 56, 57, 66, 68 and 70-84 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 47, 56, 57, 66, 68 and 70-84 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 47, 56, 57, 66, 68 and 70-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,810,559 to Fortier in view of USPN 6,044,494 to Kang.

Fortier discloses an article of clothing comprising: a woven substrate inherently having an abrasion resistance; and a plurality of non-overlapping guard plates separated by gaps on a surface of the substrate and comprising polymeric resin, wherein the array of plates guard plates are provided such that the abrasion resistance of the composite fabric is inherently at least five times greater than the abrasion resistance of the substrate (see entire document including column 1, lines 31-50, column 2, lines 48-63, and column 3, lines 10-16).

Fortier does not appear to mention guard plates partially penetrating the substrate or being cured, but Kang discloses that it is known in the art to partially penetrate and cure the resin to harden the resin and increase the bond strength between the resin and the substrate (see entire

document including column 3, lines 4-23, column 4, lines 45-55, and column 5, lines 5-27). It would have been obvious to one having ordinary skill in the art at the time the invention was made to partially penetrate and cure the guard plates, as taught by Kang, motivated by a desire to harden the guard plate material and increase the bond strength between the guard plates and the fabric substrate.

Fortier discloses that the size and shape of the guard plates are not limited but that the size and shape affect the flexibility and abrasion resistance (column 2, lines 48-60). Kang discloses that it is known in the art to use a guard plate thickness of about 8 to 16 mils. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the guard plates with any suitable guard plate thickness, such as between 8 to 16 mils, because guard plate size is a result effective variable and because it is within the general skill of a worker in the art to select a known thickness on the basis of its suitability and desired characteristics.

Claim 56, the guard plates comprise heat resistant material (column 2, line 61 through column 3, line 6).

Claim 57, the guard plates comprise abrasion resistant additive material (column 3, line 64 through column 4, line 17).

Claims 66, 68 and 79, the guard plates are rigid so gap width is a fabric stiffness result effective variable. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the gap width, such as between 5 and 20 mils, motivated by a desire to increase/decrease flexibility.

Claims 70 and 80, considering that the guard plates are made of substantially identical material (cured thermoset epoxy resin and abrasive fillers) the guard plates appear to inherently possess the claimed hardness. In addition, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the hardness, such as claimed, based on the intended use.

Claims 71 and 79, the article of clothing comprises one of pant or jacket (Figure 1).

Claim 72, the guard plate resin may be a thermoset epoxy resin (column 3, lines 53-60).

Claim 73, considering that the guard plates are made of substantially identical material (cured thermoset epoxy resin and abrasive fillers) the guard plates appear to inherently possess the claimed tensile strength. In addition, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the tensile strength, such as claimed, based on the intended use.

Claims 74 and 84, the additive material may comprise alumina particles (column 3, line 64 through column 4, line 17).

Regarding claims 75 and 81, Fortier does not appear to specifically mention the thickness of the woven fabric substrate but Kang discloses that the common woven garment fabric thickness is between 0.4 to 0.8 mm (column 3, lines 4-23). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the fabric substrate with a thickness of between 0.4 to 0.8 mm, motivated by the expectation of successfully practicing the invention of Fortier.

Claim 76, Fortier discloses that the size and shape of the guard plates are not limited but that the size and shape affect the flexibility and abrasion resistance (column 2, lines 48-60). Kang discloses that it is known in the art to use a guard plate thickness of about 8 to 16 mils. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the guard plates with any suitable guard plate thickness, such as between 8 to 16 mils, because guard plate size is a result effective variable and because it is within the general skill of a worker in the art to select a known thickness on the basis of its suitability and desired characteristics.

Claims 77 and 79, Fortier discloses that the size and shape of the guard plates are not limited but that the size and shape affect the flexibility and abrasion resistance (column 2, lines 48-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the guard plates with any suitable guard plate maximum dimension size, such as between 20 and 200 mils, because size is a result effective variable and because it is within the general skill of a worker in the art to select a known maximum guard plate size on the basis of its suitability and desired characteristics.

Claims 78 and 79, considering that the guard plates are made of substantially identical material (cured thermoset epoxy resin and abrasive fillers) the guard plates appear to inherently possess the claimed abrasion resistance. In addition, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the abrasion resistance, such as claimed, based on the intended use.

Response to Arguments

4. Applicant's arguments filed 10/13/2010 have been considered but are moot in view of the new grounds of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on (571) 272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew T Piziali/
Primary Examiner, Art Unit 1798